

MCS21 Homework 30

1. Find the equation of the normal to the graph of $y = x^3$ at the point $x = \frac{1}{3}$.
2. Find the equations of the tangent and the normal to the curve $f(x) = x^3 - 3x^2$ at $(1, -2)$.
3. Find the equation of the normal to the curve $x^2 + y^2 = 25$ at $(3, -4)$.
4. Find the equations of the lines that are tangent to and normal to the curve $x^2y^2 = 9$ at $(-1, 3)$.

5. Find the equation of the line normal to the curve $(y - x)^2 = 2x + 4$ at $(6, 2)$.
- *6. Find the equations of the lines normal to the curve $xy + 2x - y = 0$ that are parallel to the line $2x + y = 0$.
- *7. The line that is normal to the curve $y = x^2 + 2x - 3$ at $(1, 0)$ intersects the curve at what other point?